REMARKS

The claims stand finally rejected under 35 U.S.C. 112 as failing to comply with its enablement requirement. In response, applicants propose to cancel claims 27-32 and 38 and seek to amend the remaining claims as set forth hereabove. In particular, independent claim 33 is amended to specifically state that the present invention is directed to a hydrophobic emulsion having a micelle membrane formed from a food-grade vegetable oil. For reasons to be discussed herebelow, it is respectfully asserted that the claims, as presently amended, meet the enablement requirement of 35 U.S.C. 112. In addition, the presently amended claims are believed to patentably distinguish over the references of record. For purposes of convenience, the points raised in the outstanding Final Rejection will now be addressed in order of their occurrence.

In Paragraph 1 of the outstanding Final Rejection, applicants' revisions to the Specification set forth in applicants' Amendment submitted May 13, 2005, are objected under 35 U.S.C. 132 (a) as introducing new matter. Specifically, the examiner states that changing "oil-in-water" to "water-in-oil" would introduce new matter into the Specification. Applicants respectfully traverse this assertion. Correction of the inadvertently mistaken phrase "oil-in-water" on page 8 to read "water-in-oil" does not introduce new matter. As discussed in the May 13, 2005, Amendment, the Specification has always been directed to a "water-in-oil" type emulsion. Attention is directed to page 5, line 18 which states the "zero-valent metal emulsion that is generated is hydrophobic..." Only a "water-in-oil" type emulsion stabilized with a surfactant is hydrophobic and would thus remain intact when injected into in-situ water contaminated by a DNAP source. Furthermore, in the same paragraph on page 5, line 19 appears the statement "to enter though an oil membrane" which further necessitates a "water-in-oil" type emulsion. This same structure is discussed on page 9, lines 11-14 which requires DNAPL source

diffuse through the oil membrane of the emulsion to reach the surface of the zero-valent metal particles.

It appears from the examiner's comments on pages 2-6 of the outstanding Final Rejection that some confusion exists as to the nature of the present invention. Referring to page 4, Figure (a), the phrase "Water Continuum" does not refer to part of the emulsion. Rather, the Water Continuum identified in Figure (a) is the in situ contaminated water into which the emulsion is injected. The Iron Particles reside in an Aqueous medium contained within a Hydrophobic membrane formed of food-grade vegetable oil, creating a water (Aqueous medium)-in-oil (Hydrophobic membrane) emulsion which is itself injected into the Water Continuum. Because the "water-in-oil" emulsion micelle membrane is hydrophobic, it maintains its original integrity when injected into the Water Continuum. Unfortunately, the language on page 8, line 4 of the Specification mistakenly characterized the emulsion as "oil-in-water." The proposed revision merely corrects the inadvertent mistake and does not introduce any new matter into the application. It is therefore respectfully requested that the objection to the revisions to the Specification under 35 U.S.C. 132(a) be withdrawn. In support of this response, applicant submits a Declaration under 37 CFR 1.132 affirming to the above facts.

In Paragraph 3 of the outstanding Final Rejection, claims 27-38 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with its enabling requirement. As discussed hereabove, it is believed that the revised Specification meets the enabling requirement of 35 U.S.C. 112. However, claims 27-32 and 38 are cancelled and the remaining claims 33-37 revised to further clarify that the present invention is directed to a hydrophobic emulsion including a surfactant, water and zero-valent metal particles reactants located within the emulsion micelle's food-grade vegetable oil membrane. Because the invention as presently

claimed is fully supported by the Specification and because claims 33-37 fully meet the requirements of 35 U.S.C. 112, it is respectfully requested that the rejection of the claims under 35 U.S.C. 112 be withdrawn.

In Paragraph 8 of the outstanding Final Rejection, it is stated that the arguments made in applicants' Amendment filed May 13, 2005 (with respect to the examiner's previous citation of DNAPS proposal #990094) are not deemed persuasive. Proposal #990094 was for a Phase-I STTR investigation that ultimately led in the present invention. Note in Proposal #990094, paragraph 6, line 3 that the work was mistakenly characterized as creating an "oil-in-water" emulsion. This was the same inadvertent mistake made on page 8, line 4 of applicants' Specification. As set forth in the Declaration submitted under 37 CFR 1.132, applicants did not conceive of using a food-grade vegetable oil at the time the STTR Phase-I proposal was published in August 1999. In fact, Proposal #990094 did not state, or even suggest the use of a food-grade vegetable oil. It was only through actual investigation and experimentation in the laboratory that the specific oil was chosen to achieve the desired results.

In order to more clearly define the novel aspects of the present invention, independent claim 33 has been further revised to include the novel feature of claim 37, i.e., use of a food-grade vegetable oil to form the emulsion micelle membrane. For this reason, it is believed that revised independent claim 33 is patentable over the teaching in Proposal #990094. Furthermore, since the teaching of a food-grade vegetable oil was originally present in the claims, the combination of this feature with the features of claim 33 should not require any new field of search and could be entered after Final Rejection.

Applicants respectfully submit for the examiner's consideration two (2) patents that have recently come to applicants' attention. U.S. Patent No. 5,975,798 issued November 2, 1999, to

Liskowitz et al. entitled "In-situ decontamination of subsurface waste using distributed iron powder" teaches injecting a pressurized gas in combination with an atomized iron powder-water slurry into a contaminated soil in order to achieve remediation of contaminants in the soil. Liskowitz et al. provides a method for injecting pre-determined quantities of reactive zero valent iron powder into the soil. There is no teaching or suggestion in Liskowitz et al. of utilizing an emulsion, much less a stabilized hydrophobic emulsion for transferring the iron powder into the soil.

A second patent submitted for the examiner's consideration is U.S. Patent No. 5,265,674 issued November 30, 1993, to Fredrickson et al. and entitled "Enhancement of In Situ Microbial Remediation of Aquifers." Frederickson et al. teaches a method wherein oil is introduced into a contaminated area for the express purpose of allowing microorganisms to colonize near the oil and remediate the contaminants by digestion. While the oil may be emulsified, there is no suggestion of utilizing a surfactant to create a "water-in-oil" stabilized emulsion. The oil in Fredrickson et al. is utilized to create and/or deliver microorganisms to the contaminated area. The biological approach of Frederickson et al. is completely different from the chemical approach achieved in the surfactant stabilized emulsion of present invention.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that the revisions to the Specification set forth in the Amendment filed May 13, 2005, do not include any new matter and therefore should be entered into the Specification for the sole purpose of correcting the inadvertent mistaken phrase "oil-in-water". Furthermore, the revisions to the claims 33-37 are believed to overcome the rejection under 35 U.S.C. 112, first paragraph, as well as distinguish over the references of record. Because the changes to the claims do not necessitate any new search and because the changes are believed to place the claims in condition for allowance if entered, it is respectfully requested that this Response to the outstanding Final Rejection be entered and that a Notice of Allowability be issued for all the remaining claims.

Any charges due and owed may be charged to Deposit Account Number 14-0116. If there are any questions concerning this Response, applicants' undersigned attorney may be reached at direct dial (321) 867-7214.

Respectfully submitted,

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Date

Randall M. Heald
NASA John F. Kennedy Space Center
Mail Code CC-A
Kennedy Space Center, FL 32899
Reg. No.: 28,561
Tel. No.: 321-867-7214
Customer No.: 25190